

DOCUMENT RESUME

ED 168 760

RC 011 235

AUTHOR Fratoe, Frank A.
TITLE The Educational Level of Farm Residents and Workers.
Rural Development Research Report No. 8.
INSTITUTION Economics, Statistics, and Cooperatives Service
(DOA), Washington, D.C.
PUB DATE Mar 79
NOTE 29p.
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; Adult Education; Agricultural Laborers; *Agricultural Personnel; *Comparative Analysis; Educational Disadvantage; Educational Interest; Educational Needs; Farmers; Females; Functional Illiteracy; Illiteracy; Postsecondary Education; Racial Differences; Rural Development; *Rural Education; *Rural Farm Residents; *Rural Urban Differences; Sex Differences

ABSTRACT

Members of the farm related population generally lag behind their nonfarm related counterparts in the number of school years completed, number of persons completing high school and college, functional literacy rates, participants in adult education, and labor force status. In 1975 White farm males trailed metro and nonmetro nonfarm males by 1.2 and 0.8 years respectively in median school years completed. Black farm males and females trailed their metro counterparts by 5.7 years for men and 4.0 years for women. Functional illiteracy for Black farm males remained about the same (40 percent) while illiteracy among Black farm females rose from 23.1 to 31.9 percent. Farm-related youth are not seeking post-secondary schooling at a level approaching that for metro youth, and older farm-related people are less inclined to pursue adult education opportunities. Thus, many members of the farm related population lack the formal education needed to improve chances for success in complex modern farming as well as in professional career fields elsewhere. Census data from between 1968-1975 are used in this study on the educational characteristics of two farm related population components: nonmetro farm residents and farmers and farm laborers. The educational status of subpopulations (Blacks-Whites, males-females, younger-older persons) is particularly emphasized. (Author/DS)

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The Educational Level of Farm Residents and Workers

Frank A. Fratoe

U.S. DEPARTMENT OF HEALTH,
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RC 011235

United States
Department of
Agriculture

Economics,
Statistics, and
Cooperatives Service

Rural Development
Research
Report No. 8

THE EDUCATIONAL LEVEL OF FARM RESIDENTS AND WORKERS. By Frank A. Fratoe, Sociologist, Economic Development Division, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture. Rural Development Research Report No. 8.

ABSTRACT

This report examines educational characteristics of the farm-related population, including nonmetro farm residents and workers by race and sex. Members of this population generally lag behind their nonfarm-related counterparts in all areas examined: number of school years completed, number of persons completing high school and college, functional literacy rates, participants in adult education, and labor force status. The farm-related population needs more formal education in order to compete successfully in both the farming industry and nonagricultural fields.

Key words: Rural education, rural residents, farming, education, rural labor force, rural development, farmers, farm laborers

ACKNOWLEDGMENTS

The author is indebted to the following members of the Economics, Statistics, and Cooperatives Service for their assistance in preparing this report: Vera Banks, Robert Coltrane, Virginia Getz, Bernal Green, Max Jordan, Debra Ritter, and Leslie Smith.

PREFACE

This report focuses on the education of rural residents and workers in America. It closely relates to a previous study by the same author, published by USDA in October 1978, Rural Education and Rural Labor Force in the Seventies (RDRR-5). This latter report focused on the educational background of the rural labor force as it relates to income and occupation.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

Washington, D.C. 20250

March 1979

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HIGHLIGHTS

Nonmetro and farm residents and workers have less formal education than their nonfarm-related counterparts. Major findings of this report include:

-- During 1968-1975, White farm females became virtually equal with White nonfarm females in median school years completed, although White farm males still trailed metro and nonmetro nonfarm males by 1.2 and 0.8 years, respectively, in 1975.

-- During 1968-1975, there was no change for Black farm males in school years completed and only a small improvement for Black farm females; in 1975, the two groups trailed their metro counterparts by 5.7 years for men and 4.0 years for women.

-- During the same period, the functional illiteracy rates for Black farm males remained about the same (40 percent), while illiteracy among Black farm females rose from 23.1 to 31.9 percent.

-- In 1975, farm residents attended adult education classes less often than their nonfarm counterparts in all major geographic regions.

-- 1977 education levels for metro and nonmetro White labor force participants were nearly the same, but for "Black and Other" races, farm males completed 5.2 less school years than metro males.

-- Although median school years completed by male farm laborers reached 9.1 and 7.6 years for younger and older men, respectively, in 1975, they still received less education than all other occupational groups.

-- Younger male farm laborers' functional illiteracy rates declined slightly during 1968-75 (21.3 to 19.6 percent); functional illiteracy among younger farmers virtually disappeared by 1975.

-- During 1968-75, the number of college graduates among younger male farm laborers rose from 0.4 to 4.0 percent of all younger male farm laborers.

-- Of all high school seniors in 1975 whose family head worked as a farmer, 38.3 percent did not plan to attend college, a figure higher than that for any other occupational group except transport equipment operators.

The Educational Level of Farm Residents and Workers

Frank A. Fratoe

INTRODUCTION

Despite their declining numbers, farm residents and workers remain an important segment of the American population. Their socio-economic characteristics, including education, are analytically noteworthy. This report examines the educational characteristics of the farm-related population, using educational data on farm-related people available from only a few secondary sources. It will be useful to policymakers seeking basic data on rural education.

Although the definition of a "farm," and therefore of the farm population, has been debated (26; 27), 1/ for purposes of this discussion, the current Census Bureau definition of the nonmetropolitan farm population 2/ is used (see footnote 5, table 1). Two Census occupational classifications, "farmers" and "farm laborers," are also used.

The chief variables examined in this study are median years of school completed, functional illiteracy, completion of 4 years of high school or more, and completion of 4 years of college or more. Census data on these educational attainment variables are used to compare levels for farm dwellers and workers vis-a-vis their nonfarm counterparts by race and sex. Chronological change is detectable in such data between 1968 and 1975, the earliest and latest years in which the Census Bureau reported educational statistics for the nonmetro farm population (22; 24). Data related to other variables, such as participation in adult education (1975) and labor force status by attainment level (1977), were obtained from the National Center for Education Statistics (12) and the Bureau of Labor Statistics (21), respectively. Since all data were taken from sample surveys, estimates based on them may differ from figures that would have resulted from a complete census. Consult published reports for a description of sample errors.

This study focuses on the comparative standing on the above variables for each farm-related population component: nonmetro farm residents, and farmers and farm

1/ Underscored numbers in parentheses refer to literature listed in the references section at the end of this report.

2/ Nearly one-fifth of the total farm population lives in metro areas, but because of data limitations, this segment is excluded from the study. It is not known whether metro farm residents have higher or lower educational attainment levels than their nonmetro counterparts.

laborers. 3/ The educational status of subpopulations--Blacks-Whites, males-females, younger-older persons--is particularly emphasized. Any perceivable trends that have occurred during 1968-75 are noted with tentative interpretations. Comments on possible policy directions which might achieve better educational outcomes for farm-related people follow.

EDUCATIONAL NEEDS OF FARM RESIDENTS AND WORKERS

Before improvements in educational outcomes for farm-related people can be made, one must examine the actual educational needs of this population. Through its effect on cultural understanding and career skills preparation, education can help determine life opportunities for every individual. This is no less true for farm-related persons than it is for others, but the former include people with educational needs that differ according to the degree of their dependence on the soil.

In general, farm residents and farmworkers whose educational backgrounds have a direct bearing on their capacity for securing adequate life chances may be divided into four types. First are those living on the land who are engaged full-time in the highly competitive and increasingly complex farm industry. Second are the farm dwellers who work at agriculture part-time while commuting to off-farm jobs. Farm family members who are not involved in agricultural pursuits and are solely employed in nonfarm activities make up the third group. The fourth type includes people who live in small towns or urban areas but perform farm work; approximately three-quarters of all wage-earning agricultural laborers fall into this category (26; p. 6).

Americans dependent entirely on farming as a livelihood--the first group identified above--need higher levels of formal education to attain the scientific and managerial competence demanded by modern agriculture. Scientific farming requires the technological knowledge involved in making such decisions as selecting the most efficient machinery, introducing new crop varieties, developing new systems of animal nutrition, or planning land use and conservation programs. The successful contemporary farmer must also solve a whole array of economic problems--locating available finances, marketing products, keeping and analyzing records, and interpreting the impact of government programs, to name only a few (17, p. 34; 28, p. 4). Handling such an enterprise without extensive instruction in many academic subjects as well as specific agricultural training is a formidable task. 4/ Those with less formal education will find it difficult to compete with better educated farmers (3, p. 15). Nonfarm dwellers who depend heavily on agriculture, either as operators or laborers, have educational needs like their farm resident counterparts.

Part-time farmers have similar educational requirements, but they would probably benefit from further training to prepare them for nonagricultural occupations. Nonmetro areas have always had some people who supplemented their farm income by working as unskilled or semiskilled laborers during off-seasons. But with the projected expansion of nonmetro industries and businesses, the possibility of nonfarm employment increases (17, p. 77). Indeed, the proportion of farm family income which comes from nonagricultural sources is growing (19, p. 376). If farm people are to take advantage of more work opportunities, however, they will need a flexible system of occupational education to equip them for the new white collar, skilled blue collar, and service jobs coming into existence. Part-time workers will need a

3/ Because many farmers and some farm laborers are nonmetro farm residents, there is some overlap among the three groups considered.

4/ Advanced training for farmers is not confined to the formal academic setting, however. Much can be learned through informal channels and noncollegiate postsecondary opportunities.

high level of general education giving them the scholastic foundations indispensable for rapid retraining in new skills (29, p. 43) in order to adapt to shifting market conditions.

The third group, composed of those individuals who must or prefer to give up farming so they may pursue full-time nonagricultural work, will also find it important to be educationally well prepared. Unfortunately, workers displaced by decreasing agricultural opportunities have generally not been trained for emerging nonfarm employment. Because of their lower educational levels and the relatively low wages for unskilled labor, displaced workers tend to remain underemployed in nonmetro areas or migrate to cities where their prospects are not much brighter (10, p. 171). Thus there is an urgent need to enhance nonmetro career education services so that people leaving farms may have better knowledge of the job market and an intensive groundwork in one or more nonfarm occupations. School programs which stress traditional agricultural subjects alone may increasingly be less appropriate than a balanced career preparation including other specialties as well. This is particularly critical for the large numbers of current farm youth who may not be able to make a living from the soil (20, p. 98).

NONMETRO DEVELOPMENT AND EDUCATED FARM RESIDENTS AND WORKERS

The aforementioned types of farm-related people make important contributions to the economic and social development of nonmetro America. As full- or part-time workers employed in agricultural or nonagricultural pursuits, farm-related individuals can use their skills to build a socio-economic environment that provides excellent life chances. They may not be able to do this, however, if their educational experiences have failed to inculcate one or more key items: basic academic skills, career and vocational abilities, learning flexibility for retraining in new skills, or disciplinary attitudes necessary for work. Both younger and older persons among the farm-related population should possess these skills to perform their tasks effectively, whatever the employment sector (29, p. 43).

Schools have the major responsibility in helping young people attain work-oriented attitudes, although other social institutions such as the family can supply essential teaching. Much can also be learned through exposure to communications media or other informal nonschool sources. Nonmetro youth may receive instruction from special manpower programs involving on-the-job training, pre-employment support activities, classroom lessons, or a combination of these. Manpower training is a helpful way to educate some farm-related teenagers whose inadequate vocational preparation greatly limits their ability to participate in nonmetro development (10, p. 89). But a sound educational foundation is requisite for assimilating the training provided in manpower development and vocational preparation programs.

Older farm-related people need adult education, sometimes to supplement earlier school work but often to compensate for insufficient formal training or lack of a complete secondary education. Adult education (see footnote definition, table 5) makes it possible to acquire after one's normal schooling the cultural and technical skills required for different career directions. Those directions may be changed more than once, according to the need for occupational mobility or the rising level of individual aspirations (9, p. 24). The nonmetro development process may well be fostered if farm-related people can use new abilities learned through adult education and apply them to agricultural careers or other specializations. The Extension Service, farm organizations, cooperatives, church and civic groups, and adult manpower programs are just a few nonschool agencies that educate older nonmetro Americans (14, p. 252).

Yet whatever the age or background of farm-related people, it is important that they have access to educational services which result in attainment outcomes roughly commensurate with those of their nonfarm counterparts. If this is not the case, the people who live and work on farms will find themselves at a disadvantage in the labor market. Moreover, development is attenuated if the nonmetro labor force fails to provide the well-trained hands and minds necessary for expanded growth. Farm-related persons constitute a key segment of that labor force, and their full efforts are important to achieve developmental goals. But they cannot do so if, as has been claimed: (1) farm residents and workers have insufficient schooling to fill non-agricultural jobs, (2) youth who aspire to farming as a career do not attend college where they could learn technical and managerial skills, (3) older farm-related people do not avail themselves of adult education opportunities, and (4) minorities such as Blacks are the most severely handicapped in terms of education (8, p. 549; 14, p. 138).

EDUCATIONAL CHARACTERISTICS OF NONMETRO FARM RESIDENTS

School Years Completed

A logical first question to ask is how those who live on farms compare to nonfarm residents on a basic attainment variable: median years of school completed. The answer to this question varies according to race (table 1; 22; 24). White farm residents improved their position considerably during 1968-75. During that period, both White farm males and females (population 25 years old and over) narrowed the gap with their nonfarm counterparts in school years completed. 5/ White farm females became virtually equal with all White nonfarm females on this variable, although White farm males in 1975 still trailed their metro and nonmetro nonfarm counterparts by 1.2 and 0.8 years, respectively. However, it should be pointed out that older White farm men--those over 44--experienced only a slight gain in school years completed during 1968-75. 6/ One would have expected the entry of younger males with more formal education into the over 44 group and the exit of older, less educated males to have produced a greater positive change, but this was not the case.

Conversely, the educational attainment gap between farm and nonfarm Blacks actually widened during the 1968-75 period. While metro Blacks completed more school years, there was no change for Black farm males and only a small improvement for Black farm females. By 1975, the latter two groups trailed their metro counterparts by 5.7 school years for men and 4.0 school years for women. What is most serious, though, is the one school year loss by Black farm males, aged 25 to 44, during 1968-75. Data from migration studies suggest that younger rural Blacks with more schooling have moved to the cities (23), leaving behind a Black population less prepared educationally for jobs on or off the farm. Furthermore, older farm Blacks (45 years and over), both male and female, did not increase their average level of formal education, with most remaining at or just above the level of functional illiteracy.

Functional Illiteracy

Farm Whites and Blacks show similar differences according to functional illiteracy. If one uses the conventional definition of this variable, that is, failure to complete at least 5 years of elementary school, then it is clear that farm Blacks of both sexes have a severe functional illiteracy problem compared to White farm males

5/ Estimated numbers of nonmetro farm residents 25 years old and over are listed in appendix table 1.

6/ Data by age category are not shown in tables 1-6 but may be found in (22) and (24).

Table 1--Median school years completed by persons 25 years old and over, by selected categories, 1968 and 1975

Race and metro-nonmetro status	1968 ^{1/}		1975 ^{2/}	
	Male	Female	Male	Female
	<u>Years</u>			
Total population:				
Metro ^{3/}	12.2	12.2	12.5	12.4
Central cities	12.1	12.0	12.4	12.3
Suburbs	12.3	12.3	12.6	12.4
Nonmetro ^{4/}	10.7	11.5	12.1	12.1
Nonfarm	11.1	11.6	12.2	12.1
Farm ^{5/}	8.9	10.8	11.0	12.2
White:				
Metro	12.3	12.2	12.6	12.4
Central cities	12.2	12.1	12.5	12.3
Suburbs	12.4	12.3	12.6	12.5
Nonmetro	11.2	11.9	12.2	12.2
Nonfarm	11.5	12.0	12.2	12.2
Farm	9.1	11.3	11.4	12.2
Black:				
Metro	10.0	10.4	11.6	11.8
Central cities	10.2	10.5	11.5	11.7
Suburbs	9.0	10.1	12.0	12.0
Nonmetro	6.9	7.9	7.8	8.9
Nonfarm	7.2	8.1	8.1	8.9
Farm	5.9	7.1	5.9	7.8

^{1/} Metro population for 1968 is based on Standard Metropolitan Statistical Area (SMSA) as defined in the 1960 Census and does not include subsequent additions or changes.

^{2/} Metro population for 1975 is based on SMSA's as defined in the 1970 Census and does not include subsequent additions or changes.

^{3/} Metropolitan refers to population residing in SMSA's; "central cities" includes the largest city in an SMSA and additional city or cities in an SMSA with at least 250,000 inhabitants or a population of one-third or more of that of the largest city and a minimum population of 25,000; "suburbs" (designated as "outside central cities" by the Census Bureau) refers to population residing in an SMSA but outside central cities.

^{4/} Nonmetro is defined as population residing outside of SMSA's.

^{5/} Nonmetro farm refers to population living in nonmetro areas on places of less than 10 acres yielding agricultural products which sold for \$250 or more in the previous year, or on places of 10 acres or more yielding agricultural products which sold for \$50 or more in the previous year; nonmetro nonfarm is defined as population living in nonmetro areas but not on farms, although this group may include some farmers.

Source: (22, table 2; 24, table 2)

and females (table 2; 22; 24). During 1968-75, the White farm resident illiteracy rate dropped from its already low level, reaching a point not much different than that for nonfarm residents. But the situation for Blacks was quite the contrary. Functional illiteracy rates for Black farm males remained about the same during the 1968-75 period, an alarmingly high rate of more than 40 percent, roughly 4 times that of metro Black men and 14 times the rate for metro White men in 1975. The functional illiteracy percentages for Black farm females rose during 1968-75 from 23.1 to 31.9 percent, while the rates for all other Black and White women declined,

Analysis of age categories discloses why Black farm residents have not improved their position on this variable. Functional illiteracy rates for younger Black farm males and females aged 25 to 44 climbed to 33 and 17 percent, respectively, in 1975. Such rates were not as high as those for older farm Blacks (44 years plus), but they show that functional illiteracy is not merely a characteristic of the old. Indeed, the exodus of better educated, younger Blacks from the countryside has made the functional illiteracy problem among Black farm people as pressing today as it has been historically, with little hope for a quick solution.

Table 2--Persons 25 years old and over who have completed less than 5 years of elementary school (functional illiterates), by selected categories, 1968 and 1975

Race and metro- nonmetro status	1968		1975	
	Male	Female	Male	Female
	Percent			
Total population:				
Metro	4.8	4.5	3.7	3.4
Central cities	6.4	6.0	5.3	4.8
Suburbs	3.5	3.1	2.6	2.2
Nonmetro	9.4	7.0	6.6	4.7
Nonfarm	9.3	7.2	6.6	4.6
Farm	9.9	5.8	7.1	5.1
White:				
Metro	3.7	3.8	2.9	2.8
Central cities	4.9	5.2	4.0	4.2
Suburbs	2.8	2.6	2.2	1.9
Nonmetro	7.1	5.2	4.9	3.4
Nonfarm	7.2	5.4	4.9	3.4
Farm	6.8	4.1	5.0	3.5
Black:				
Metro	14.8	10.0	10.7	7.0
Central cities	13.4	9.1	10.6	7.1
Suburbs	19.9	13.5	11.0	6.9
Nonmetro	34.8	25.7	30.2	19.0
Nonfarm	33.3	26.1	28.9	17.8
Farm	42.5	23.1	41.0	31.9

Source: (22, table 2; 24, table 2).

High School Graduates

Critical to labor force participation is the attainment of at least a high school education, as employers upgrade hiring criteria to include more schooling. Unfortunately, the general nonmetropolitan population is notably disadvantaged in this respect. Nonmetro residents graduate smaller percentages of students from high school than their metro counterparts and, among the former, farm residents have the poorest record. In 1975, there was a 22.6 percentage point difference between metro and farm White males 25 years old and over achieving at least a high school education; for women the comparable difference was 8.3 percentage points (table 3; 22; 24). Such figures were not greatly dissimilar to those for 1968, although the proportions of White farm males and females completing high school did increase during the period. However, the corresponding gaps between metro and farm Blacks widened during that period, becoming 37.8 percentage points for men and 31.9 percentage points for women. Less than one-fifth of farm Black residents have finished high school. And it should be no surprise that older farm residents, as opposed to their younger counterparts in both racial categories, have the smallest high school completion rates.

Table 3--Persons 25 years old and over who have completed 4 years of high school or more, by selected categories, 1968 and 1975

Race and metro- nonmetro status	1968		1975	
	Male	Female	Male	Female
	Percent			
Total population:				
Metro	56.8	56.2	67.5	65.0
Central cities	51.8	50.6	62.9	59.2
Suburbs	60.9	61.6	70.8	69.6
Nonmetro	43.2	47.1	53.8	55.6
Nonfarm	45.0	47.7	54.9	55.6
Farm	33.3	43.4	44.7	56.2
White:				
Metro	59.1	58.6	69.5	67.1
Central cities	54.9	53.4	66.2	61.9
Suburbs	62.1	62.7	71.5	70.5
Nonmetro	45.7	49.7	56.0	58.1
Nonfarm	47.5	50.2	57.3	58.0
Farm	35.5	46.3	46.9	58.8
Black:				
Metro	34.7	36.0	47.2	48.5
Central cities	35.6	36.4	46.3	47.7
Suburbs	31.8	34.2	50.5	51.5
Nonmetro	16.1	19.2	23.7	26.1
Nonfarm	16.7	20.3	25.3	27.0
Farm	13.0	12.0	9.4	16.6

Source: (22, table 2; 24, table 2).

College Graduates

On the three previous variables examined, Black farm residents were far below all other Blacks and Whites. But farm Whites are about equally disadvantaged on the next variable--percentage completing college--and even more so when their record is compared to metropolitan Whites. Despite an increase from 1968 figures, in 1975 just 7.2 percent of White farm males 25 years old and over had completed college, or one-third the rate for all metro White males (table 4; 22; 24). In contrast, 4 percent of Black farm males had finished college in 1975 (up from 1.2 percent in 1968), a figure more than half that for Black metro males. Comparable differences for White and Black women were less, but showed the same general pattern.

As one might expect, younger farm residents aged 25 to 44 had higher college completion rates, but only one category's rate--for White males--exceeded 10 percent in 1975. Thus, the farm population has no prospect for any "catchup" on this variable in the near future. It is quite possible, of course, that many of the latter group who were college graduates migrated to urban areas seeking better job markets for their advanced training. If that is true, then the actual college completion rates for farm dwellers may not be quite so low in comparison. Yet even so, the low number of college graduates in the agricultural community means that there are large numbers of people who lack the academic background important for complex modern farming as well as for professional and other white collar work elsewhere.

Table 4--Persons 25 years old and over who have completed 4 years of college or more, by selected categories, 1968 and 1975

Race and metro- nonmetro status	1968		1975	
	Male	Female	Male	Female
	<u>Percent</u>			
Total population:				
Metro	15.3	8.6	20.3	11.7
Central cities	13.2	7.5	18.3	10.8
Suburbs	17.1	9.7	21.8	12.4
Nonmetro	9.6	6.6	11.8	8.2
Nonfarm	10.7	7.0	12.4	8.5
Farm	2.7	4.0	7.0	6.1
White:				
Metro	16.4	9.1	21.4	12.2
Central cities	14.6	8.1	20.3	11.7
Suburbs	17.6	9.9	22.0	12.5
Nonmetro	10.2	6.7	12.3	8.5
Nonfarm	11.5	7.1	13.0	8.8
Farm	3.0	4.2	7.2	6.2
Black:				
Metro	4.3	4.7	7.7	6.8
Central cities	4.4	4.5	6.7	6.1
Suburbs	4.0	5.5	11.1	9.1
Nonmetro	2.3	5.0	3.6	4.3
Nonfarm	2.5	5.4	3.6	4.2
Farm	1.2	2.8	4.0	5.5

Source: (22, table 2; 24, table 2).

Adult Education

Farm residents who have not completed college or high school can use an alternative path to expand their learning skills--adult education. Unfortunately, fewer farm residents 17 years old and over pursued this opportunity in 1975 than did their nonfarm counterparts in the four major geographic regions (table 5; 12). Of those farm residents who did enroll in adult education, almost all were White, despite data suggesting that farm Blacks need adult education experiences the most. The largest overall differences can be noted in the South, where the proportion of metro residents taking adult education courses (13 percent) was about 3 times that of farm dwellers who did so (4.4 percent). Yet even in the West, where 13.2 percent of farm residents participated in adult education programs, metro areas still had greater representation. It is not certain whether the farm population's lesser participation results from simple lack of opportunity or insufficient motivation. Some recent evidence indicates that both shortage of financial resources and insufficient knowledge of programs comprise barriers to participation (5, pp. 16-17).

Labor Force Status By Educational Level

Schooling and adult education opportunities are by no means the only determinants of labor force status. Whether people enter the labor force or not may be influenced by other conditions such as location of jobs, commuting costs, health of potential workers, and so on. But when other factors are constant, the academic and job preparation skills learned through formal education can be decisive in getting a job. For this reason, the importance of education to the farm population should not be underestimated. In terms of labor force status for persons over 16 years old, there is little difference between White farm dwellers and their nonfarm counterparts (table 6). 7/ In fact, 1977 educational attainment levels of White metro and nonmetro labor force participants were nearly the same. But for "Black and Other" races there was a large gap between farm and metro males (5.2 years). Labor force educational attainment levels for "Black and Other" farm men were also far below those for White farm men. These particulars may be due to the rural-to-urban migration of many young Blacks, leaving Black farmworkers who are, on average, older than White workers living on farms or Black workers living in metropolitan areas. Older minorities generally have less formal schooling (11, p. 57).

In 1977, metro nonlabor force members had more education than all categories of their nonmetro counterparts, although the differences for White women were very small and probably insignificant. There was also not much disparity between attainment levels for White female labor and nonlabor force participants living on farms, implying that White farm women are well educated as a group or that their better trained members are underrepresented in the labor force. For White farm males, there was a large positive difference in the educational attainment levels between labor force and nonlabor force members (2.7 years). Black farm men in the labor force completed 2 school years less than Black farm females not in the labor force.

7/ Estimated numbers of farm residents 16 years old and over in the labor force and not in the labor force are listed in appendix table 2.

Table 6--Labor force status and median years of school completed of persons 16 years and older, by selected categories, 1977

Race and metro- nonmetro status	In civilian labor force <u>1/</u>		Not in civilian labor force <u>2/</u>	
	Male	Female	Male	Female
	<u>Years</u>			
White:				
Metro	12.7	12.6	11.4	12.2
Central cities	12.7	12.6	11.4	12.1
Suburbs	12.7	12.6	11.4	12.3
Nonmetro	12.4	12.5	10.1	12.0
Nonfarm	12.5	12.5	10.2	12.0
Farm	12.3	12.4	9.6	12.0
Black and others:				
Metro	12.3	12.5	10.3	11.0
Central cities	12.3	12.4	10.2	10.9
Suburbs	12.5	12.6	10.6	11.7
Nonmetro	11.1	12.0	9.1	9.5
Nonfarm	11.4	12.0	9.1	9.5
Farm	7.1	<u>3/</u>	<u>3/</u>	9.1

1/ The total of all civilian persons 16 years of age and over classified as employed or unemployed.

2/ All persons not classified as employed or unemployed; persons doing only incidental unpaid family work (less than 15 hours) are also included in this group.

3/ Data base less than 75,000 persons.

Source: (21).

EDUCATIONAL CHARACTERISTICS OF FARMERS AND FARM LABORERS

School Years Completed

Discussion of the educational attainment of labor force members who live on farms naturally leads to consideration of similar characteristics for two associated occupational categories: farmers and farm laborers. Individuals who pursue these two major agricultural occupations must be regarded as separate from farm dwellers because many of the former reside in towns or cities; this is particularly true for farm laborers (16; 26). Of course, the importance of education to the entire farm-related population justifies an independent focus on data related to each population component. Although it would also be desirable to examine the attainment levels of other farm-related people who work in nonagricultural jobs, such information is not available.

Average number of school years completed by male farmers and farm managers 25 to 44 years old rose only slightly during 1968-75, while years completed by male farm laborers and supervisors rose somewhat more (table 7; 22; 24). 8/ But male farm

8/ Estimated numbers of farmers and farm laborers 25 to 44 and 45 to 64 years old are listed in appendix table 3.

laborers and supervisors still lagged behind farmers and managers by over 3 years (9.1 to 12.5), about the same span male farm laborers trailed their female counterparts. However, more impressive changes took place among older agricultural labor force members. For example, the educational attainment of women farm laborers 45 to 64 years old rose by 2.6 years during 1968-75 to a level fairly close to that for younger male farmers. Male farmers 45 to 64 increased their attainment level to 10.9 years by 1975, compared to only 7.6 years for male farm laborers in the same age category. Perhaps male farm laborers have not taken advantage of adult education opportunities to the same extent as older male farmers and female farm laborers. To a large degree, the changes noted may be due to chronological replacement of less educated older persons by better educated younger people.

Table 7--Median school years completed by employed persons 25 to 64 years old, by selected categories, 1968 and 1975 ^{1/}

Age and occupation group	1968		1975	
	Male	Female	Male	Female
	<u>Years</u>			
25 to 44 years old:				
Professional workers	16.5	16.3	16.8	16.4
Managers, excluding farm	12.9	12.5	14.4	12.9
Sales workers	13.0	12.4	14.2	12.6
Clerical workers	12.6	12.6	13.0	12.7
Craft workers	12.1	12.0	12.4	12.4
Operatives	11.6	11.0	12.2	12.0
Laborers, excluding farm	10.0	<u>2/</u>	12.1	12.2
Service workers	12.2	11.4	12.5	12.2
Farmers and farm managers	12.3	<u>2/</u>	12.5	<u>2/</u>
Farm laborers and supervisors	8.3	11.9	9.1	12.3
45 to 64 years old:				
Professional workers	16.4	16.2	16.5	16.2
Managers, excluding farm	12.6	12.4	12.9	12.6
Sales workers	12.6	12.2	12.9	12.4
Clerical workers	12.3	12.5	12.5	12.6
Craft workers	10.7	11.9	12.1	12.2
Operatives	9.3	9.2	10.6	10.2
Laborers, excluding farm	8.4	<u>2/</u>	9.1	11.9
Service workers	9.5	<u>2/</u>	11.2	11.1
Farmers and farm managers	8.9	<u>2/</u>	10.9	<u>2/</u>
Farm laborers and supervisors	6.3	9.4	7.6	12.0

^{1/} Data on occupations relate to the job held during the week the Census Bureau survey was taken. Persons employed at two or more jobs were reported in that job at which they worked the greatest number of hours during the week.

^{2/} Data base less than 75,000 persons.

Source: (22, table 6; 24, table 4).

Functional Illiteracy

The functional illiteracy problem (as conventionally defined) among male farmers and farm managers aged 25 to 44 had virtually disappeared by 1975 (table 8; 22; 24). Even among older male farmers the proportion of those completing less than 5 years of elementary school declined to 3.7 percent. Farmers do not compare unfavorably on this variable with white collar workers and are better off than blue collar job holders. The situation for male farm laborers and supervisors, however, is strikingly different. Male farm laborers have the highest functional illiteracy rates of all occupational groups. Younger male farm laborers saw only a small decline in that rate during 1968-75 (21.3 to 19.6 percent), while their older counterparts experienced a larger decrease but at much higher levels (39.9 to 34.7 percent). Although the figures for female farm laborers are considerably lower, the functional illiteracy rate for younger women nonetheless almost doubled to 5.6 percent by 1975. It is not clear whether the illiteracy problem among farm laborers is due to inadequate schooling opportunities for the group as a whole, the influx of Hispanic farm workers—who generally have low educational attainment ^{9/} (18, p. 6), or some combination of these and other factors.

Table 8--Employed persons 25 to 64 years old who have completed less than 5 years of elementary school (functional illiterates), by selected categories, 1968 and 1975

Age and occupation group	1968		1975	
	Male	Female	Male	Female
	<u>Percent</u>			
25 to 44 years old:				
Professional workers	0.1	0.1	0.1	0.1
Managers, excluding farm	.5	--	.2	.3
Sales workers	.3	--	.1	--
Clerical workers	.1	.1	.2	.1
Craft workers	1.7	--	.8	--
Operatives	3.5	3.0	2.1	2.5
Laborers, excluding farm	9.3	<u>1/</u>	6.6	--
Service workers	2.7	2.3	2.7	1.4
Farmers and farm managers	2.2	<u>1/</u>	.7	<u>1/</u>
Farm laborers and supervisors	21.3	2.9	19.6	5.6
45 to 64 years old:				
Professional workers	.1	.1	.1	.1
Managers, excluding farm	.8	1.2	.7	.5
Sales workers	.8	.9	.9	.7
Clerical workers	1.1	.1	.6	--
Craft workers	3.6	.7	2.7	1.3
Operatives	7.0	5.9	5.5	4.3
Laborers, excluding farm	19.1	<u>1/</u>	11.6	2.7
Service workers	9.0	7.1	6.1	4.5
Farmers and farm managers	8.3	<u>1/</u>	3.7	<u>1/</u>
Farm laborers and supervisors	39.9	5.2	34.7	3.0

-- = Zero or rounds to zero.

^{1/} Data base less than 75,000 persons.

Source: (22, table 6; 24, table 4). Percentages calculated.

^{9/} Hispanic farmworkers have lower average education levels than other racial/ethnic groups of farm laborers.

High School Graduates

It has been pointed out that in 1975, for the first time in U.S. history, more than half of farmers and farm managers had completed 4 years of high school or more (2, p.3). This is encouraging because it signals a trend toward better educational preparation for farmers who need scientific and managerial skills to succeed in their business. Indeed, those with low educational levels have proven less competitive and have left agriculture, producing a steady decline in the number of farmers with less than a full high school education (2, pp. 3-4). But some other tendencies, perhaps not quite so encouraging, have arisen (table 9; 22; 24). Although there was an 11.3-percentage-point increase in the high school completion rate for male farmers 25 to 44 years old during 1968-75, comparable increases for blue collar workers were greater. The high school completion rate for younger male farmers in 1975, 73.9 percent, was well below that for white collar occupations, about equal to craft and

Table 9--Employed persons 25 to 64 years old who have completed 4 years of high school or more, by selected categories, 1968 and 1975

Age and occupation group	1968		1975	
	Male	Female	Male	Female
	Percent			
25 to 44 years old:				
Professional workers	96.9	98.1	98.7	98.3
Managers, excluding farm	83.4	77.0	92.7	88.3
Sales workers	88.2	73.1	93.4	83.1
Clerical workers	82.2	88.1	91.0	92.1
Craft workers	56.9	51.4	72.8	67.8
Operatives	45.9	37.8	60.2	51.5
Laborers, excluding farm	29.5	1/	53.1	57.9
Service workers	61.4	43.2	74.4	62.3
Farmers and farm managers	62.6	1/	73.9	1/
Farm laborers and supervisors	20.9	48.6	34.7	65.6
45 to 64 years old:				
Professional workers	93.1	95.8	95.1	95.8
Managers, excluding farm	73.1	67.9	83.0	79.3
Sales workers	74.3	61.6	84.3	72.9
Clerical workers	62.6	78.7	75.5	85.0
Craft workers	39.0	48.9	52.4	58.7
Operatives	28.5	27.1	37.8	32.5
Laborers, excluding farm	16.0	1/	26.3	49.5
Service workers	33.2	29.2	43.4	42.4
Farmers and farm managers	29.9	1/	43.8	1/
Farm laborers and supervisors	13.7	36.1	21.8	52.5

1/ Data base less than 75,000 persons.

Source: (22, table 6; 24, table 4). Percentages calculated.

service workers' rates, and only above that for operatives and laborers. Among male workers aged 45 to 64, farmers saw a larger increase on this variable than most other occupational groups but once again, only operatives and laborers ranked lower in 1975 percentage of high school graduates.

Male farm laborers and supervisors in both major age categories had the lowest high school completion rates. Their female coworkers, on the other hand, compared well with women in blue collar occupations for both age categories. Moreover, 65.6 percent of younger female farm laborers had finished at least 4 years of high school in 1975, a figure well above the 34.7 percent recorded by their male counterparts and not far below that for male farmers 25 to 44. Additional evidence indicates that most farm laborers who complete high school are White (18, p. 7). Thus, many White females who work as farm laborers have the minimum educational qualification for other positions: a high school diploma.

College Graduates

During 1968-75, the percentage of younger farmers and farm managers finishing 4 years of college or more increased. The percentage of male farmers 25 to 44 years old completing college more than doubled to reach 11.6 percent by 1975; among younger men, farmers trailed only those in white collar jobs (table 10; 22; 24). This

Table 10--Employed persons 25 to 64 years old who have completed 4 years of college or more, by selected categories, 1968 and 1975

Age and occupation group	1968		1975	
	Male	Female	Male	Female
	Percent			
25 to 44 years old:				
Professional workers	64.0	61.2	71.6	65.6
Managers, excluding farm	27.6	10.5	37.7	24.4
Sales workers	25.9	2.9	33.5	12.4
Clerical workers	11.5	3.6	17.7	7.3
Craft workers	1.5	3.6	3.9	4.7
Operatives	.8	.6	2.6	1.6
Laborers, excluding farm	1.2	1/	3.2	5.3
Service workers	2.7	.9	8.0	2.9
Farmers and farm managers	5.1	1/	11.6	1/
Farm laborers and supervisors	.4	.7	4.1	2.2
45 to 64 years old:				
Professional workers	59.4	57.3	62.5	57.3
Managers, excluding farm	18.8	7.6	24.9	13.8
Sales workers	11.7	1.7	22.1	4.0
Clerical workers	6.3	4.3	8.2	5.0
Craft workers	1.5	1.5	2.4	1.9
Operatives	.6	.6	1.2	.6
Laborers, excluding farm	.7	1/	1.2	1.8
Service workers	2.4	.7	2.3	1.1
Farmers and farm managers	1.4	1/	3.6	1/
Farm laborers and supervisors	3.4	2.6	1.8	5.1

1/ Data base less than 75,000 persons.

Source: (22, table 6; 24, table 4). Percentages calculated.

notable increase was overshadowed, however, by the tenfold rise in the proportion of college graduates among younger male farm laborers during 1968-75. Although the latter group attained a figure of only 4.1 percent, this was still greater than comparable data for craft workers, operatives, and nonfarm laborers. Female farm laborers in both major age categories also demonstrated substantial improvement on this variable. Continued growth of the college completion rate, particularly among young people, bodes well for farmers who find postsecondary education experiences helpful to successfully conduct their enterprise (2, p. 4), and for farm laborers who can utilize advanced college training to enter other occupations.

Plans to Attend College

Optimism concerning farmers' growing inclination to obtain a college education must be tempered by consideration of other evidence, however. Without the desire to attend college, it is unlikely that young people will continue their schooling past the 12th grade. One way to determine this desire is to survey the college attendance plans of high school seniors (table 11: 25). Farmers' children, those most likely

Table 11--High school seniors 14 to 34 years old plans for college,
by occupation group of family head, 1975 1/

Occupation group of family head	: Planning: to attend: college :	: May attend : college :	: Not planning: to attend: college :	: School plans not: reported :	: Total
	:	:	:	:	:
	:	:	:	:	:
			<u>Percent</u>		
Civilian labor force	: 49.7	23.5	23.8	3.0	100.0
Employed	: 50.1	23.2	23.6	3.1	100.0
Professional workers	: 69.9	18.2	9.3	2.6	100.0
Managers, excluding farm	: 67.0	17.3	13.4	2.3	100.0
Sales workers	: 54.3	20.7	20.1	4.9	100.0
Clerical workers	: 50.0	25.2	22.9	1.9	100.0
Craft workers	: 39.1	27.3	29.2	4.4	100.0
Operatives, excluding transport:	: 39.4	25.0	31.4	4.2	100.0
Transport equipment operatives	: 39.2	21.5	38.6	—	100.0
Laborers, excluding farm	: 23.6	40.7	31.7	4.0	100.0
Service workers	: 39.7	26.0	29.2	5.1	100.0
Farmers and farm managers	: 45.8	16.8	38.3	—	100.0
Farm laborers and supervisors	: <u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>
Unemployed	: 39.2	29.4	30.4	1.0	100.0
Not in labor force	: 37.1	29.3	27.2	6.4	100.0

— = Zero or rounds to zero.

1/ Only civilian noninstitutional population 14 to 34 years old included. Excludes students in families whose head is a member of the armed forces, and students who are family heads or married, spouse present.

2/ Data base less than 75,000 persons.

Source: (25, table 4).

to pursue an agricultural career, seem to exhibit a stronger desire to go to college than the children of blue collar workers. According to table 11, 45.8 percent of 1975 high school seniors whose family head worked as a farmer or farm manager planned to attend college. Only white collar occupational categories had higher percentages. But 38.3 percent of the former group did not plan to attend college at all, a figure higher than that for any other occupational category except transport equipment operatives. If such a large proportion of negative planners were to continue, the increase of college graduates among farmers may not be maintained, unless college-trained children of other workers were to enter agriculture. The ability of farmers' offspring to follow other careers requiring a higher education background could also be curtailed. Apparently, many younger farm family members are not convinced that college study is a necessity in their lives. 10/

Adult Education

Older persons engaged in agricultural pursuits also do not appear to desire advanced educational experiences. To illustrate, agricultural workers participate in adult education at one of the lowest rates for all employed industrial groups (table 12),

Table 12--Participants in adult education, by industry in
which employed and race, 1975

Employment status and industry	Persons 17 years old and over participating in adult education		
	Total	White	Black and other
	<u>Percent</u>		
Employed	16.1	14.9	1.2
Agriculture 1/	6.3	6.2	.1
Mining	16.6	16.3	.3
Construction	10.9	10.1	.8
Manufacturing	12.4	11.5	.9
Transportation and utilities	15.0	14.1	.9
Wholesale and retail trade	11.2	10.4	.8
Finance and real estate	22.5	21.5	1.0
Public administration	24.8	22.6	2.2
Private household service	6.6	5.8	.8
Miscellaneous service	23.3	21.3	2.0
Unemployed	12.2	10.1	2.1
Not in labor force	6.7	6.2	.5

1/ "Agriculture," a category somewhat more comprehensive than the total of the two occupation groups "farmers and farm managers" and "farm laborers and supervisors," also includes persons engaged in agricultural services, horticulture, forestry, and fisheries.

Source: (12).

10/ These results may imply that there are fewer occupational choices or more complete knowledge about the educational requirements of the few occupational choices available in nonmetro areas, thus prompting firmer decisions about college by farm-related seniors.

even lower than that for unemployed workers (12). In 1975, only 6.3 percent of those employed in agriculture participated in adult education, compared to a 16.1-percent average for people employed in all industries. Contrast the former rate to that for categories such as public administration, which was four times as large. Undoubtedly, individuals in other categories like public administration have great incentive to supplement their formal education because additional coursework may lead directly to promotion or career advancement. But agricultural workers need extended schooling to improve their career prospects as well, and when they do not take advantage of adult education opportunities, they fall even further behind their nonagricultural counterparts in educational preparation. This is especially significant for minorities, since very few agricultural workers enrolling are Black or Other (table 12).

POLICY IMPLICATIONS

Data presented in this report generally indicate that both farm residents and workers are disadvantaged educationally. Nonmetro farm residents trail their metro counterparts on most of the educational variables examined, by wide margins in the case of Blacks. Farmers and farm laborers are typically at an educational disadvantage compared to most other occupational groups, with farm laborers having the lowest attainment record. Despite increased college attendance, farm-related youth are not seeking post-secondary schooling at a level approaching that for metro youth, and older farm-related people are less inclined to pursue adult education opportunities. Thus, many members of the farm-related population lack the higher levels of formal education needed to improve chances for success in agricultural or nonagricultural career fields and contribute fully to nonmetro development. One can conclude that the educational needs of farm-related people, whether they are engaged solely in agricultural work or have other jobs, have not been adequately met.

If this situation is to be improved, then the educational shortcomings of farm-related people must be eliminated. Data previously discussed suggest some possible policy directions. These tentative policy directions are summarized here, although no attempt has been made to establish priorities among them.

Career Education

Career education would enhance the job preparation of farm residents and workers. "Career education" refers to those experiences and activities through which students learn about work, including basic academic study, awareness of work values, counseling, exploration of alternative occupations, work-study programs, job placement services, and vocational education (training for a primary work role). Such experiences can help farm-related persons make informed choices in both white and blue collar fields. Evidence accumulated over the past decade implies that nonmetro high school seniors have career aspirations which are incongruent with their early adult behaviors and inconsistent with job market realities (6; 7; 15). Career education programs in nonmetro schools may reduce these inconsistencies by promoting a better "fit" between schooling and occupational selection. Professions both on and off the farm can also be reviewed for potential employment. Unfortunately, many nonmetro school systems are unable to furnish career education opportunities because insufficient funds and personnel make it impossible to accommodate such services (4, pp. 12-22).

Adult Education

Older farm-related people must have adult education experiences if they are to improve their attainment levels and learn the necessary occupational skills for agricultural or nonagricultural specialties. Younger Black farm males, whose better

schooling presently gives them little advantage in labor force participation, need career counseling and training so they may be more able to seek off-farm jobs. The same can be said for farm women, both White and Black. Few nonmetro women are employed in agriculture; most are inclined to pursue clerical and service occupations (13, p. 8-9). Adult education programs can give these various groups the chance to obtain the necessary educational foundations for increased career options. But the farm-related population as a whole does not seem motivated to take advantage of adult education opportunities, certainly not to the same extent as metro and nonmetro nonfarm people. Perhaps what is required, rather than extensive development of new programs, is an incisive media campaign to convince adult farm residents and workers that they have an important stake in additional formal learning. Those profiting most from these services--older males, Blacks, and women--might become information target audiences in such a campaign.

Minority Education

Black farm residents and farm laborers are two nonmetro minority groups at a severe educational disadvantage. Other farm-related minorities suffering many of the same educational deprivations are Hispanics and low-income Whites (24). In general, one can say that these groups complete fewer school years, have higher rates of functional illiteracy, are less likely to finish high school or college, and receive the least training as adults. Without educational upgrading, their opportunities to contribute to nonmetro social and economic development are limited. Special manpower training programs for teenage or adult farm-related minorities may enrich their vocational preparation but cannot fully overcome the learning deficits stemming from inadequate schooling. Remedial programs in basic skills, guidance counseling, career training, and bilingual teaching where necessary could help these students during their formative years. While the Federal Government provides assistance to disadvantaged minority pupils, metro and nonmetro, no programs are specifically earmarked for any segment of the farm-related population.

Education of Women

Farm-related women, whether in the labor force or not, have generally higher attainment levels than farm-related men. Although increasing numbers of these women are engaged in off-farm occupations, their range of job opportunities remains limited despite their educational advantage. Thus, a larger reservoir of farm-related female talent exists which could be tapped for nonmetro business and public service expansion. Unless nontraditional career guidance information and job placement services for women are made available in nonmetro areas, however, these talents will continue to go untapped. Beyond providing such services, women's learning opportunities could be improved by encouraging farm girls to participate in field trips and conferences where they can meet women who represent a wide variety of career pursuits, supporting educational guidance programs at teacher training institutions focusing on the needs of farm-related people, and by developing innovative uses of electronically based educational delivery systems (radio, television, computers) to reach women and girls located in remote places (1, pp. 15-16, 28-29).

REFERENCES

- (1) Clarenbach, Kathryn. Educational Needs of Rural Women and Girls. Report of the National Advisory Council on Women's Educational Programs. U.S. Government Printing Office, 1977.
- (2) Flinn, William L. and Robert D. Munoz. "Changes in the Educational Levels of Farmers and Farm Managers," Socio-Economic Information for Ohio Agriculture and Rural Communities, (April 1978), pp. 3-4.
- (3) _____. "The Educated Farmer," Farm Index. Vol. 16, Dec. 1977, p. 15.
- (4) Fratoe, Frank. Rural Education and Rural Labor Force in the Seventies. Washington, D.C.: Economics, Statistics, and Cooperatives Service, U.S. Dept. of Agriculture, RDRR-5, Oct. 1978.
- (5) Green, Bernal, and others. Deterrents to Training and Employment, As Perceived by Low-income Household Heads in Western Arkansas. Arkansas Agricultural Experiment Station Bull. No. 814, 1976.
- (6) _____. "The Class of 1965: Where Are They Now?" Arkansas Farm Research. Mar.-Apr. 1977, p. 10.
- (7) Jordan, Max, and others. Aspirations and Capabilities of Rural Youth in Relation to Present and Projected Labor Market Requirements. Arkansas Agricultural Experiment Station Bull. No. 722, 1967.
- (8) Levitan, Sar A., and others. Human Resources and Labor Markets. New York: Harper and Row, 1976.
- (9) Malassis, Louis. The Rural World: Education and Development. Paris: UNESCO Press, 1976.
- (10) Marshall, Ray. Rural Workers in Rural Labor Markets. Salt Lake City: Olympus Publishing Co., 1974.
- (11) Michelotti, Kopp. "Educational Attainment of Workers, March 1977." Special Labor Force Reports--Summaries, Monthly Labor Review. Vol. 100, Dec. 1977, pp. 53-57.
- (12) National Center for Education Statistics. Unpublished data on participation in adult education, May 1975.
- (13) O'Leary, Jeanne M. "Labor Force Facts About Rural Women," Farm Index. Vol. 17, March 1978, pp. 8-9.
- (14) Rogers, Everett M. and Rabel J. Burge. Social Change in Rural Societies. New York: Appleton-Century-Crofts, 1972.
- (15) Ross, Peggy J. Educational and Occupational Profiles for U.S. High School Seniors in the Class of 1972. Unpublished monograph, U.S. Dept. of Agriculture, ESCS, 1978.
- (16) Rowe, Gene and Leslie W. Smith. The Hired Farm Working Force of 1975. Economic Research Service, U.S. Dept. of Agriculture, AER-355, 1976.

- (17) Sanders, Irwin T. Rural Society. Englewood Cliffs, N.J.: Prentice Hall, 1977.
- (18) Smith, Leslie W. Social and Economic Characteristics of Spanish-Origin Hired Farmworkers in 1973. Economic Research Service, U.S. Dept. of Agriculture, AER-349, 1976.
- (19) Sundquist, W.B. "The Future of Farmers and Farming," The Yearbook of Agriculture, 1971. U.S. Dept. of Agriculture, 1971.
- (20) Tweeten, Luther and George L. Brinkman. Micropolitan Development. Ames: Iowa State Univ. Press, 1976.
- (21) U.S. Bureau of Labor Statistics. Unpublished data on educational attainment of workers, March 1977.
- (22) U.S. Bureau of the Census. "Educational Attainment: March 1968," Current Population Reports. Series P-20, No. 182, 1969.
- (23) _____. "Mobility of the Population of the United States: March 1970 to March 1975," Current Population Reports. Series P-20, No. 285, 1976.
- (24) _____. "Educational Attainment in the United States: March 1975," Current Population Reports. Series P-20, No. 295, 1976.
- (25) _____. "College Plans of High School Seniors: October 1975," Current Population Reports. Series P-20, No. 299, 1976.
- (26) U.S. Bureau of the Census and Economic Research Service. "Farm Population of the United States: 1976," Current Population Reports. Series P-27, No. 49, 1977.
- (27) U.S. Bureau of the Census and Economics, Statistics, and Cooperatives Service. "Farm Population of the United States: 1977, (Advance Report)," Current Population Reports. Series P-27, No. 50, 1978.
- (28) U.S. Dept. of Health, Education, and Welfare. Planning and Conducting a Program of Instruction in Vocational Agriculture for Young Farmers. 1978.
- (29) Vaizey, John and Michael De Beauvais. "Economic Aspects of Educational Development," Education, Economy, and Society. Ed. A.N. Halsey and others. New York: Free Press, 1961.

Appendix table 1--Persons 25 years old and over, by
selected categories, 1968 and 1975

Race and metro- nonmetro status	1968		1975	
	Male	Female	Male	Female
	Thousands			
Total population	50,510	55,959	55,036	61,861
Metro	32,659	36,744	37,419	42,415
Central cities	14,729	17,593	15,817	18,858
Suburbs	17,930	19,150	21,602	23,557
Nonmetro	17,851	19,215	17,617	19,445
Nonfarm	15,149	16,632	15,481	17,377
Farm	2,701	2,584	2,137	2,069
White	45,526	50,170	49,259	54,806
Metro	29,197	32,633	32,925	36,907
Central cities	12,113	14,398	12,528	14,750
Suburbs	17,084	18,234	20,396	22,157
Nonmetro	16,330	17,537	16,334	17,899
Nonfarm	13,869	15,181	14,324	15,952
Farm	2,461	2,356	2,010	1,947
Black	4,474	5,295	4,925	6,171
Metro	3,079	3,730	3,750	4,728
Central cities	2,382	2,974	2,876	3,670
Suburbs	697	757	874	1,058
Nonmetro	1,395	1,565	1,176	1,442
Nonfarm	1,180	1,360	1,054	1,324
Farm	215	206	121	119

Source: (22, table 2; 24, table 2).

Appendix table 2--Persons 16 years old and over in the labor force
and not in the labor force, by selected categories, 1977

Race and metro- nonmetro status	Labor force		Not in labor force	
	Male	Female	Male	Female
	Thousands			
White	50,475	34,294	14,696	37,505
Metro	34,055	23,538	9,245	24,559
Central cities	12,207	8,947	3,877	9,719
Suburbs	21,848	14,591	5,368	14,840
Nonmetro	16,420	10,756	5,451	12,946
Nonfarm	14,561	10,006	4,967	11,589
Farm	1,859	750	484	1,358
Black and others	5,917	5,080	2,499	5,180
Metro	4,490	3,882	1,830	3,757
Central cities	3,157	2,741	1,430	2,858
Suburbs	1,333	1,141	400	899
Nonmetro	1,428	1,198	669	1,423
Nonfarm	1,310	1,148	625	1,307
Farm	118	51	44	116

Source: (21).

Appendix table 3--Employed persons 25 to 64 years old, by age, occupation group, and sex, 1968 and 1975

Age and occupation group	1968		1975	
	Male	Female	Male	Female
	Thousands			
25 to 44 years old	20,845	10,504	22,230	13,579
Professional workers	3,692	1,744	4,429	2,861
Managers, excluding farm	2,962	408	3,351	735
Sales workers	1,168	558	1,336	734
Clerical workers	1,410	3,565	1,295	4,750
Craft workers	4,328	111	4,764	236
Operatives	4,311	1,905	3,741	1,564
Laborers, excluding farm	1,134	46	1,111	114
Service workers	1,056	2,000	1,535	2,466
Farmers and farm managers	505	27	422	29
Farm laborers and supervisors	277	140	245	90
45 to 64 years old	16,840	9,836	16,358	10,383
Professional workers	1,853	1,392	2,086	1,451
Managers, excluding farm	2,996	648	2,954	763
Sales workers	852	803	978	746
Clerical workers	1,042	2,654	1,093	3,249
Craft workers	3,732	135	3,573	155
Operatives	3,087	1,582	2,715	1,435
Laborers, excluding farm	938	31	854	111
Service workers	1,170	2,378	1,268	2,335
Farmers and farm managers	935	57	667	39
Farm laborers and supervisors	233	155	170	99

Source: (22, table 6; 24, table 4).